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Biotechnology Notes

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Biotechnology Notes, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

FINAL ISSUE * FINAL ISSUE * FINAL ISSUE

DEAR READERS,

*As many of you may already know, this will be your last issue of **Biotechnology Notes**. When I started the publication almost 8 years ago, my aim was to accurately and simply report on USDA's role in the emerging field of agricultural biotechnology. As issues other than science and regulation came to the fore and agricultural biotechnology became a global concern, I broadened my "beat" to report on these events as well. Now that we have arrived at a place where major obstacles have been overcome and a spirit of collaboration exists among players, I am ready to move on to new challenges.*

I have thoroughly enjoyed sharing the news with you, and I hope you will continue to track and participate in the many exciting developments still to come. Thank you for being such an enthusiastic readership. I have saved your kind letters and e-mail messages and will take them with me when I leave for a temporary assignment to USDA's Biotechnology Information Center (BIC) at the National Agricultural Library in Beltsville, MD. If you have any concerns or questions related to biotechnology information, please call me at BIC after February 20 at 301-504-6333; E-mail: masner@nal.usda.gov

This month's issue is a retrospective of a few of the major stories (now slightly edited to save space) I reported on since first going to press in May 1988. I hope you enjoy this brief trip down memory lane. Good-luck and best wishes to each of you. -- M.A.

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## BIOTECHNOLOGY RESEARCH GUIDELINES

USDA is developing research guidelines for agricultural researchers who utilize techniques such as recombinant DNA in their research. The research guidelines are necessary because the existing guidelines, which were written for the National Institutes of Health, only pertain to biomedical research. USDA plans to publish the guidelines in the *Federal Register* for public comment. *Volume 1, Number 1, May 1988*

## IN CASE YOU WEREN'T THERE

Almost 700 agricultural communicators gathered in Washington, DC for the second meeting of the U.S. Agricultural Communicators' Congress. Jeremy Rifkin, president of the Foundation on Economic Trends, discussed the present and future of biotechnology. Rifkin said he has formed a global commission in over 40 countries which will try to ban



the commercial use of bovine growth hormone around the world through a consumer boycott campaign. Rifkin's foundation has also called for an international moratorium on the deliberate release of genetically engineered organisms pending a thorough review of environmental and public health risks. *Volume 1, Number 4, August 1988*

## **PLANT GENOME MAPS: A BLUEPRINT FOR LIFE**

The Agricultural Research Service is the lead agency in a national program to map plant genes. The new Office of Plant Genome Mapping Programs will coordinate activities and serve as the focal point for mapping and sequencing plant genomes and identifying plant genes that confer desirable traits. *Volume 2, Number 6, June 1989*

## **VOX POPULI: THE VOICE OF THE PEOPLE**

Initial results of an opinion poll on biotechnology conducted on North Carolinians show most people (77%) feel that producing more nutritious food is the most desirable use of genetic engineering. Eighty percent of those surveyed said too little regulation of genetic engineering poses serious risks to human health, and two-thirds said genetic engineering will give large-scale farmers an unfair advantage over small-scale farmers. *Volume 2, Number 7, July 1989*

## **MARKET FOR TRANSGENIC MICE OFF TO STRONG START**

DuPont's transgenic mice seem to be a hit: Orders for 15,000 of the animals were filled before the company began its marketing campaign. The licensing arrangement calls for DuPont to recover some money from academic researchers and to retain more rights if the mice are used to develop significant commercial products. A market of \$25 million to \$100 million is expected over the next few years. *Volume 3, Number 1, January 1990*

## **ALL ABOUT BIOSAFETY**

Biosafety refers to the procedures scientists follow when they conduct field tests of genetically modified plants and organisms. Such procedures are intended to protect both people and the environment. An upcoming meeting, "International Symposium on the Biosafety Results of Field Tests of Genetically Modified Plants and Microorganisms," will examine the biosafety results of field tests and identify those areas that need more data. The meeting takes place on Kiawah Island, south of Charleston, SC. The USDA and Clemson University are among the sponsors. *Volume 3, Number 5, May 1990*

## **NEW USDA BIOTECH COUNCIL MEETS**

Food safety was the main topic at the kick-off meeting of USDA's newly formed Biotechnology Council. Chaired by Alvin Young, Director of the OAB, the Council serves as a subcommittee to the Committee on Biotechnology in Agriculture (CBA) and will meet

monthly. According to Young, the Council will provide a forum for senior level staffers in 11 agencies and the Office of the Secretary to share information and coordinate biotech programs and activities. *Volume 3, Number 6, June/July 1990*

## **NEW US-EC TASK FORCE ON BIOTECHNOLOGY SETS GOALS**

Genome mapping, research databases, exchange of post-doctoral fellows, public education, a workshop on in-vitro testing, and biosafety were several of the areas identified for possible collaboration at the first meeting of the US-EC Task Force on Biotechnology Research held in Washington, DC. Secretary of Agriculture Clayton Yeutter and Allan Bromley, Assistant to the President for Science and Technology, addressed the group. Both stressed the importance of the meeting in setting the stage for future cooperation between the Commission of the European Communities (EC) and the U.S. Government. *Volume 3, Number 9, October/November 1990*

## **OAB HOLDS NATIONWIDE PUBLIC MEETINGS**

To encourage public participation, USDA's Office of Agricultural Biotechnology held informal public meetings on proposed research guidelines for field testing genetically altered organisms. The meetings took place in Sacramento, CA, St. Louis, MO, Raleigh, NC, and Washington, DC. Participants came from 23 states and five foreign countries. Most supported USDA's effort to issue guidelines and said guidance is urgently needed to promote safety in field research. *Volume 3, Number 9, October/November 1990*

## **TRANSGENIC FISH TAKE THE PLUNGE**

On May 22, 1991, Auburn University's Alabama Agricultural Experiment Station put 50,000 young carp -- half of them transgenic, half controls -- into 10 brand new outdoor research ponds in an experiment that could eventually lead to new methods of increasing the production of food fish in the United States. USDA recently completed a thorough environmental assessment of the project and concluded the research presented no significant impact. *Volume 4, Number 6, June/July 1991*

## **UP ON THE HILL: A LOOK BACK AT THE 101ST CONGRESS**

The 1990 Farm Bill creates a National Competitive Research Initiative for funding in several high priority areas including plant systems, molecular and cellular genetics, and plant and microbial biotechnology. Another provision creates a Biotechnology Risk

Assessment Research Program which authorizes a competitive research grant program to fund health and environmental risk assessment research. *Volume 3, Number 10, December 1990*



## **BIODIVERSITY: OUR FOOTHOLD TO THE FUTURE**

A hefty price is often paid for the rewards of living in modern times. One is the use of genetic and biological variety in living organisms. Habitat destruction is especially severe in the tropics where the largest number of different species make their home. To help sustain the biodiversity in these regions, the United Nations Environment Programme has formed a group on biodiversity conservation, which met in Nairobi, Kenya earlier this year. The group is considering the most effective form a treaty might take in order to help conserve biodiversity. Its deliberations include an examination of the role biotechnology might play. *Volume 4, Number 5, May 1991.*

## **VETERINARY BIOLOGICS: BETTER PRODUCTS THROUGH BIOTECHNOLOGY**

Plants, microbes, and animals aren't the only beneficiaries of biotechnology: new and better veterinary biological products, such as diagnostic test kits, vaccines, and toxins, are also being developed using monoclonal antibody technology and recombinant DNA techniques. The result is biologicals that give faster diagnoses, are highly specific, and produce very accurate results. *Volume 4, Number 8, September 1991*

## **TRANSGENIC GOATS PRODUCE HUMAN DRUG**

Researchers at the Tufts School of Veterinary Medicine, North Grafton, MA, and the Genzyme Corp., Cambridge, MA, have genetically modified goats to produce a human pharmaceutical, tPA, in their milk. The drug is used to treat heart attacks in humans. Research in which transgenic livestock are used to produce human pharmaceutical proteins is commonly referred to as transgenic pharming. *Volume 4, Number 9, October 1991*

## **SCIENCE TEACHERS + STUDENTS = BIOTECH EDUCATION**

More than 100 teachers, scientists, and science education specialists put their heads together last October at the University of Wisconsin, Madison to discuss biotechnology education in America. They agreed that biotechnology must be infused into the high school curriculum, preferably in the introductory biology course which is taken by about 95% of high school students. There was also general agreement that such a course should emphasize the basics of science, the technological applications of biotechnology, and the social and ethical issues. *Volume 4, Number 10, November/December 1991*

## **A FIRST CUT AT CROSSCUT**

This past spring Federal agencies embarked upon a biotechnology research "crosscut" project that cut across 12 Federal departmental boundaries. It was initiated at the request of the Office of Science and Technology Policy of the Executive Office of the President. The immediate objective was for each agency to collect and analyze all data

relevant to the funding of biotechnology research. The long-term goal is to use the information to help the President set priorities and develop budgets. *Volume 5, Number 1, January 1992*

## **NEW BIOTECH REPORT REVIEWED**

Members of the U.S. House of Representative's Committee on Science, Space, and Technology met December 16 in Baltimore, MD to hear testimony on a new Congressional report on biotechnology as well as the latest thinking from various experts on research trends, commercialization, and technology transfer. The new report, "Biotechnology in a Global Economy," says that although the United States remains preeminent in biotechnology research and development, the competitiveness of products and processes may ultimately hinge on protection of intellectual property, the regulatory climate, tax policies, and fair trade practices. *Volume 5, Number 1, January 1992.*

## **BT: HARD TO RESIST**

The scientific community has met several times to discuss the problem of insect resistance to Bt and develop possible strategies for combatting resistance. The latest conference took place January 22-23 at USDA and the group's recommendations should be finalized in several weeks. *Volume 5, Number 2, February 1992*

## **CATERPILLARS GET THEIR COMEUPPANCE**

Researchers at Monsanto Company, St. Louis, MO, have developed transgenic cotton that has built-in insecticide resistance. This could mean a dramatic decrease in the use of chemical pesticides. *Volume 5, Number 2, February 1992*

## **NEW CHINA-EC BIOTECH CENTER OPENED**

On November 1, 1991, the China-EC Biotechnology Center in Beijing was officially opened. The Center's goal is to promote scientific and technological cooperation between research institutes of the People's Republic of China and those of the member nations of the EC in the biomedical and agricultural biotechnology arenas. *Volume 5, Number 3, March 1992*

## **FIELD TESTING IN JAPAN**

Japan has approved its first test in a general field setting. The plant is a tomato with a protein gene of tobacco mosaic virus. The test is Government-sponsored. However, success with this general field test may spur private companies to begin testing the many varieties of transgenic plants now in greenhouses. *Volume 5, Number 6, June 1992*



## **STREAMLINING THE PERMIT SYSTEM**

USDA's APHIS has proposed a new, speedier system for reviewing field tests of genetically modified plants in which researchers would simply notify the government of their intentions and certify that they will abide by published standards and administrative procedures. In addition to the notification system, APHIS has proposed a petition process in which certain transgenic plants, after completing field tests, would no longer require USDA regulatory oversight. *Volume 5, Number 11, November 1992*

## **BIOTECHNOLOGY DOES WELL IN SURVEY**

In an informal survey conducted by the Institute of Food Technologists, 70% of the people interviewed said they have a favorable view of biotechnology applied to food. They also said government funding for biotechnology research should be increased and that they want more information about the uses of biotechnology. Forty-six percent said they had "some confidence" in the government's ability to keep foods safe. *Volume 5, Number 11, November 1992*

## **OECD WRAPS UP CROP PLANT DOCUMENT**

The Group of National Experts for Safety in Biotechnology of the OECD agreed to move forward and publish its long-awaited guidance for field testing genetically engineered crops. The document explains how to do a large-scale field trial using appropriate oversight controls to ensure both environmental and public health safety. It was drafted by representatives from 12 U.S. agencies and then submitted to the group of 24 OECD member nations. The document will be made available to any country that is considering conducting field experiments. *Volume 6, Number 7, August/September 1993*

## **BIOTECH COMES TO THE VINEYARD**

At a July 22 meeting of the American Institute of Wine and Food in San Francisco, CA, scientists discussed ways in which biotechnology is helping to solve disease problems in grapes. Biotechnology has already resulted in improved diagnostic kits for diagnosing grape disease. Some of the diseases can now be pinpointed in hours instead of years using traditional laboratory practices. Researchers have also started to sequence the chromosome of yeasts used in grape fermentation. *Volume 6, Number 8, October 1993*

## **MAJOR COTTON PATENT GRANTED**

The Patent and Trademark Office issued a patent October 27, 1992 for genetically modified cotton to Agracetus, a subsidiary of W. R. Grace and Company. The patent will be in effect for 17 years and gives Agracetus broad authority over all cotton genetically modified as a result of biotechnology methods. *Volume 7, Number 1, January 1994*



## **FSIS POLICY ON FOOD SAFETY AND TRANSGENIC ANIMALS**

USDA's Food Safety and Inspection Service has published requirements that should be met before livestock or poultry from transgenic animal research can be submitted for slaughter. Entitled "Points to Consider in the Food Safety Evaluation of Transgenic Animals from Transgenic Animal Research," the document should provide consumers assurance that regulatory oversight is adequate to ensure the food safety of meat and poultry derived from transgenic research animals. *Volume 7, Number 4, April 1994*

## **BIOTECH TOMATO HEADED FOR GROCERY STORES**

On May 18, the Food and Drug Administration approved as safe Calgene's new FLAVR SAVR tomato. This tomato is the first whole food developed through biotechnology to be made available to consumers. Other genetically engineered foods, however, are in the pipeline and could come to market in the next few years. They include cooking oils with lower fat and crops that require fewer pesticides and fertilizers. *Volume 7, Number 6, June 1994*

## **ABRAC ENDORSES AQUATIC STANDARDS**

USDA's ABRAC voted unanimously to endorse written "Performance Standards for Safely Conducting Research with Genetically Modified Fish and Shellfish" at its November 17 meeting in Monterey, CA. After the vote, some ABRAC members suggested that the fish paradigm was so well thought out that it should be used as a model for other risk assessment issues. *Volume 7, Number 12, December 1994*

## **FDA GIVES NOD TO 7 MORE BIOTECH PRODUCTS**

The Food and Drug Administration gave the green light to companies seeking Federal endorsement for seven genetically altered products: three slow-ripening tomatoes, virus resistant squash, beetle-resistant potatoes, and herbicide-tolerant cotton and soybeans. *Volume 7, Number 12, December 1994*

## **NEW BIOTECH BIBLIOGRAPHY RELEASED**

USDA's National Agricultural Library in Beltsville, MD has announced publication of "Biotechnology and Sustainable Agriculture: A Bibliography," which lists 127 articles by recognized authorities on the future of biotechnology in sustainable agriculture. The bibliography was produced jointly by NAL's Biotechnology Information Center and the Alternative Farming Systems Information Center. *Volume 8, Number 2, February 1995*

## A BLUEPRINT FOR THE FUTURE OF BIOTECHNOLOGY

Under the auspices of the Executive Office of the President, a research strategy for biotechnology has been prepared encouraging more research in non-medical fields such as agriculture, the environment, aquaculture, and bioprocessing. The agriculture component of the blueprint stresses the need to continue research into gene mapping, metabolic pathways, the mysteries of growth and development, and the relationship between the environment and plants and animals. The report is entitled "Biotechnology for the 21st Century: New Horizons" and was prepared by the Biotechnology Research Subcommittee of the Committee on Fundamental Science, which reports to the National Science and Technology Council. *Volume 8, Number 11, December 1995*

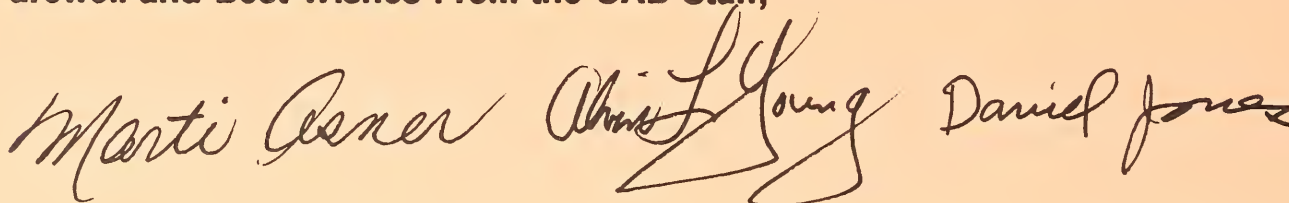
## MONTEREY COUNTY SAYS "YES" TO BIOTECH RESEARCH

Last November, the Monterey County (CA) Board of Supervisors voted unanimously to relax a law restricting biotechnology research. The new ordinance allows the county ag commissioner to grant permits for genetic engineering projects on agricultural lands. *Volume 9, Number 1, January 1996*

## MISSION ACCOMPLISHED: USDA'S BIOTECH OFFICE TO CLOSE

USDA's Office of Agricultural Biotechnology will be closing its doors and discontinuing all activities effective February 16, 1995. Among the activities scheduled to cease operations are the Agricultural Biotechnology Research Advisory Committee and the publication, *Biotechnology Notes*. *Volume 9, Number 1, January 1996*

Farewell and Best Wishes From the OAB Staff,



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